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EXPERT MEETING ON SCOPING GLOBAL SEASONAL CLIMATE UPDATES

Agenda item : 4

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REQUIREMENTS FOR CLIMATE PRODUCTS AND SERVICES TO SUPPORT DISASTER RISK REDUCTION, AN EXAMPLE:

SUMMARY OF RELEVANT OUTCOMES OF THE MEETING OF THE CBS TASK TEAM ON METEOROLOGICAL SERVICES FOR IMPROVED HUMANITARIAN PLANNING AND RESPONSE

1. Background

1.1. Disaster Risk Management: A multi-Sectoral challenge

Nearly 80% of disasters caused by natural hazards are linked to climate-related extremes. IPCC Fourth Assessment Report has provided scientific evidence that the severity, intensity and frequency of climate related hazards such as droughts, heat waves, floods, forest fires and tropical cyclones are increasing as a result of human-induced climate change. When a disaster happens, it not only threatens human life, but also has profound impacts on various economic sectors and social systems, setting back development in many countries, particularly those with least resources.

Many socio-economic sectors, including water, agriculture, fisheries, health, forestry, transport, tourism and energy, are highly sensitive to weather and climate extremes such as droughts, floods, cyclones and storms, heat waves or cold waves. Decision-makers in these sectors are increasingly concerned by the adverse impacts of climate variability and change, but are not sufficiently equipped to make effective use of climate information to manage current and future climate risks. Consequently, there is not only an urgent need for enhanced global cooperation in the development of accurate and timely climate information but also equally urgent need for its exchange between the providers of climate services and various sectors, thus ensuring that relevant climate information is integrated into policies, planning and practices in various sectors and at various levels. Recent advances in science and technology offer the prospect of further improvements in quality of climate information and prediction services. Integrating seasonal to multi-decadal predictions and long-term climate projections into decision-making in all socio-economic sectors, through an effective two-way dialogue between providers and at-risk sectors on the range, timing, quality and content of climate products and services, will ensure that decisions relating to managing climate risks are well informed, more effective and better targeted. Furthermore, this must be augmented with systematic strengthening of institutional and operational capacities of climate information providers at the national, regional and international levels, to ensure sustainable development and availability of information for risk management and planning.

1.2. New Paradigm in Disaster Risk Management with focus on Prevention and Preparedness

Traditionally, many countries have been reactive to disasters. However, the adoption of “Hyogo Framework for Action 2005-2015: Building the resilience of nations and communities to disasters,” (Hereafter referred to as HFA) by 168 countries during the Second World Conference in Disaster Reduction (January 2005, Kobe, Japan), has led to a new paradigm in disaster risk management

focused on prevention and preparedness to reduce the impacts of disasters. In this context, meteorological, hydrological and climate products and services are critical input for development of preparedness and preventive strategies. The UNFCCC Bali Action Plan has stressed the need for disaster risk management as a critical component of climate risk management and adaptation of all countries.

Effective disaster risk management must be founded on scientifically sound risk assessment, to quantify and understand the risks associated with natural hazards and their impacts. In many countries, the institutional capacities and cooperation for risk assessment need to be developed or strengthened. Risk assessment requires quality assured historical and real time data on hazards, and socio-economic impact data. Furthermore, there is need for development of disaster impact depositories for various sectors.[1] There is also need for hazard and risk analysis tools for quantification of exposures and vulnerabilities (e.g., casualties, construction damages, crop yield reduction, water shortages).[2]

However, analysis of hazard patterns from historical data is necessary but not sufficient for risk assessment. Changing patterns of climate hazards are posing challenges with longer-term strategic planning and investments (e.g., infrastructure planning and retrofitting based on building codes and specifications, using only historical records (e.g., 100 year flood may become a 30 year flood). Such climate analysis tools for assessing changes in severity, frequency, and occurrences of hydro-meteorological hazards at seasonal, inter-annual, decadal, and longer climate change time lines need to become available operationally and applied for risk assessment.

With the risk knowledge, countries can develop risk management using (1) early warning systems and preparedness, (2) medium and long-term sectoral planning (e.g., land zoning, infrastructure development, agricultural management, water resource management, etc.) and (3) utilization of weather-indexed insurance and financing mechanisms to reduce and transfer the economic impacts of disasters at various levels and decision timelines (operational to strategic). All sectors require a wide range of meteorological, hydrological and climate information products and services, at different temporal and spatial scales, and with different information content. These information products include data products, forecasts, outlooks and analyses, and research products. Early warning systems have been demonstrated to be effective tools for reducing loss of life through improved emergency preparedness and response, however, emergence of climate prediction and forecasting tools provides unprecedented opportunities to provide outlooks and warnings with longer lead times that can be used for improved sectoral planning (e.g., supply/demand management and risk management practices in agriculture, urban planning, water resource management, etc.) and ultimately protection of livelihoods.

2. About WMO Disaster Risk Reduction Programme and its Implementation Strategy

WMO through the crosscutting framework of its disaster risk reduction (DRR) Programme (established by WMO Congress XIVI, in 2003) has developed a systematic approach engaging WMO Programmes, constituent bodies, Members and external partners to implement WMO DRR strategic priorities through national projects with a strong regional cooperation framework. This implementation plan is supported by a two-tier approach involving: 1) good practices and development of guidelines and know-how, and 2) national and regional coordinated projects, engaging WMO Members, WMO Programmes, Technical Commissions, Regional Associations and partner organizations.

[1] WMO, through its technical commissions are developing guidelines for various hazard databases, metadata and analysis tools and is working through national DRM and Adaptation development projects with other partners such as the World Bank, UNDP and ISDR in several regions, to develop institutional capacities of the National Meteorological and Hydrological Services including modernization of their systems and networks and development of capacities in monitoring, data rescue and management, hazard mapping and analysis and operational forecasting of meteorlogical, hydrological and climate conditions. Through the Global Risk Identification Programme (GRIP) (http://www.gripweb.org/grip.php?ido=1000) national socio-economic disaster impact data depositories are being facilitated.

[2] Through World Bank's Risk Modelling Initiatives engaging a wide range of national agencies and experts (e.g., Central America Probabilistic Risk Assessment Programme, which is being considered to expand to other regions) probabilistic open-source risk modelling tools are being developed to support national sectoral risk assessment projects in Central America.

2.1. Capacity needs of NMHS and WMO Operational Network of GDPFS (RSMCs and RCCs) in supporting DRR applications

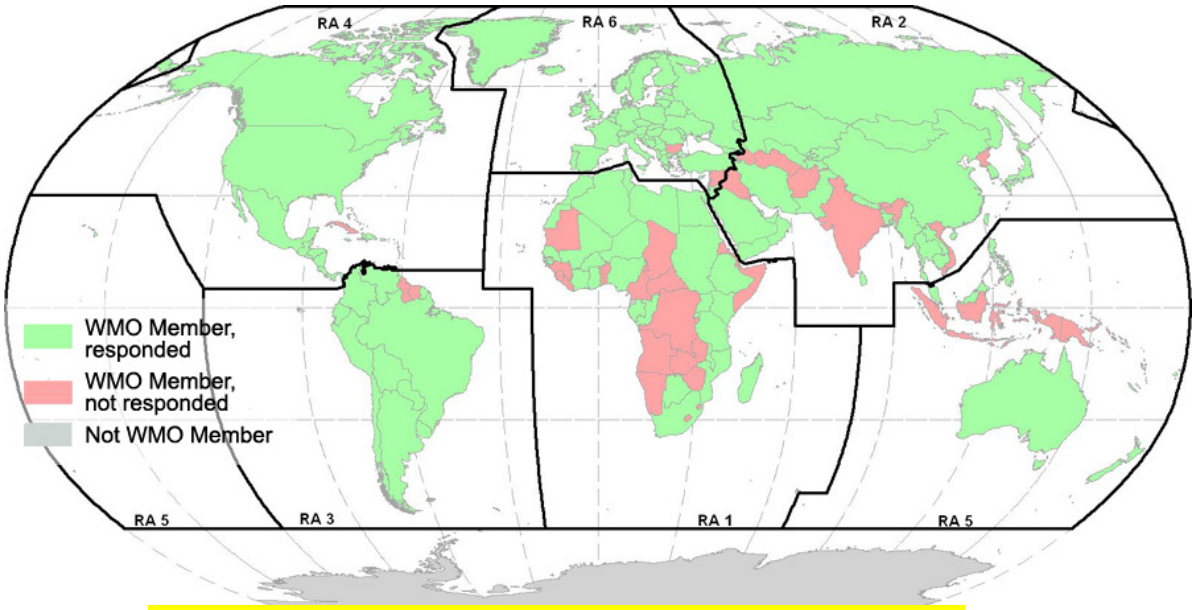
As part of development of its implementation strategy, WMO conducted a national DRR survey in May 2006. The objective of the survey was to determine the capacities, gaps and needs of the national meteorological and hydrological services (NMHSs) to support disaster risk management (DRM) and their respective involvement in national disaster management structures and mechanisms. The survey was distributed to 187 Member of which 139 provided responses, which revealed that NMHSs of WMO Members face a number of challenges, including:

(i) Legislation and Planning: Nearly 70% of countries are still focused on post-disaster response, lacking effective planning, legislation, coordination and institutional capacities in DRM. Even if NMHSs were able to provide good weather and climate information and services, in most countries there is no capacity in disaster DRM to carry out preparedness measures. However, partners such as UN-ISDR and development agencies are working with the national and local governments to facilitate the implementation of HFA. This has significant implications for receptivity of the government and DRM authorities for investing in and utilizing NMHSs information and services;

(ii) Infrastructure: Over 65% of NMHSs are significantly challenged with respect to their core infrastructure (observational networks, 24/7 forecasting systems, telecommunication, etc.) needing some level of modernization and sustainability of these capacities;

(iii) Technical and Scientific Capacity Development: On the operational side, nearly 80% of NMHSs lack various technical tools, guidelines and training for meteorological, hydrological and climate-related hazard database and meta data maintenance, hazard analysis and mapping, various forecasting and analysis tools;

(iv) Institutional Partnerships, Coordination and Service Delivery: Over 80 % of NMHSs responding to the survey have indicated the need for strengthening their partnerships with various DRM stakeholders, pertaining to management, coordination, operational and service delivery aspects.



139 out of 187 Members (74 %)

Least developed countries: 25/50 50 %

Developing countries: 85/137 54 %

Figure 1: Responses to the WMO Country-Level DRR Survey 2006

The results of the survey are continually being complimented with analysis of capacities of DRM agencies being carried out by key partners such as UN-ISDR, UNDP, UN-OCHA and World Bank, who are working with national governments in relation to governance (policy, planning and legislation), funding and institutional capacities for DRM. The results of the analysis are the foundation for the strategic implementation of the DRR Programme.

2.2. DRR Implementation strategy for National/Regional Project development

A clear DRR Project Management Framework with criteria for initiation of projects and a resource mobilization strategy were developed, which are being used for the initiation of two types of DRR model projects in several WMO regions and sub-regions, with strong connection to the Regional Associations (RAs) DRR structures. These projects demonstrate the benefits of integrated programming across WMO Technical Programmes and Technical Commissions in collaboration with Regional Associations and external partners for development of capacities of NMHSs to support DRM and multi-hazard early warning systems. These include:

(i) First type: National and regional DRM and adaptation projects with the World Bank, UN–International Strategy for Disaster Reduction (UN-ISDR), and UNDP which focus on development of national capacities and regional cooperation along three components, including: (i) DRM institutional capacities across various economic sectors (e.g., health, infrastructure and urban planning, agriculture, energy, civil protection and emergency planning, etc.); (ii) NMHSs and their partnership with DRM stakeholders; and (iii) financial risk transfer and insurance markets. WMO is invited as a key partner for addressing capacity developments of the NMHSs and their partnerships. This type of project has been initiated in eight countries in Southeast Europe, eight countries in Central Asia and Caucuses, and five countries in Southeast Asia;
(ii) Second type: Comprehensive end-to-end multi-hazard early warning system (MH-EWS) projects building upon capacity development activities of WMO technical programmes in countries that have some institutional capacities for emergency preparedness and planning. The first step in initiating these projects involves a "MH-EWS Training Workshop with Focus on Institutional Partnerships and Coordination," held under the umbrella of the RAs, bringing together directors and senior-executives from NMHSs and DRM agencies, regional and international organizations as well as the development and funding agencies to identify the needs and priorities for the development of regional/sub-regional cooperation programmes complemented with national MH-EWS development projects.

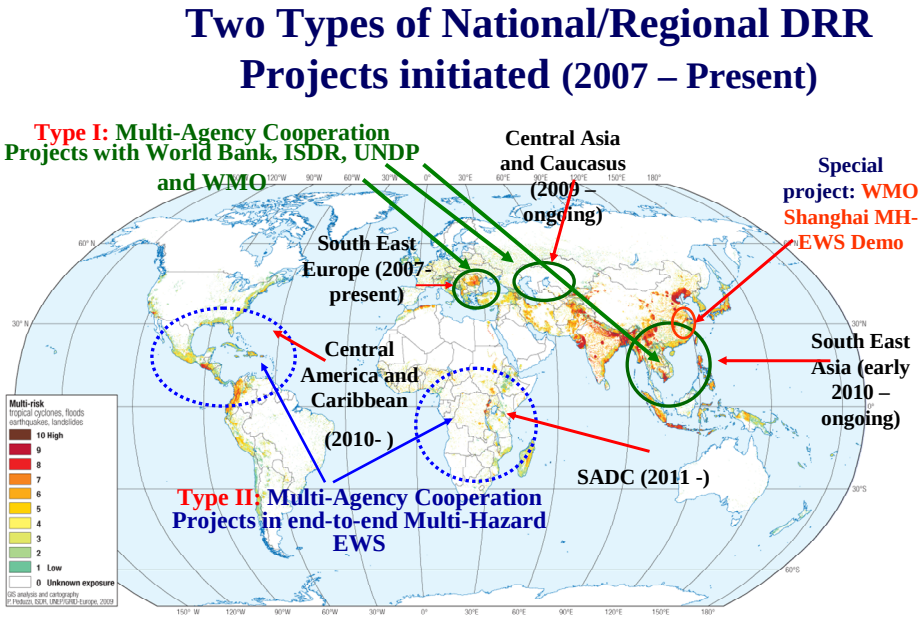


Figure 2: WMO DRR national/regional cooperation projects

3. Defining DRR User Requirements for Meteorological, Hydrological, Climate Products and Services:

World Climate Conference-3 (WCC-3) stressd the importance of climate information in supporting DRR and discussed the clear linkages of DRR as a critical component of climate adaptation and the Global Framework for Climate Services (GFCS). Since its adoption in 2005, the Hyogo Framework for Action (HFA) has provided clear priorities for action and justification for the need for cooperation at national, regional and international levels to significantly reduce the impacts of natural hazards. Coordination mechanisms for DRR are being strengthened or established at various levels providing opportunities to identify, segment users and determine their requirement within the spectrum of seamless products and services that can support the different decision processes in DRR (See Figure 3), for example:

1. At the national level, increasingly more countries are restructuring or strengthening their disaster risk management programmes, through establishment of national coordination mechanisms/committees/platforms, using a multi-ministerial, multi-sectoral, multi-hazard approach, to bring together the scientific and technical agencies such as NMHSs, disaster risk management agencies, other relevant ministries and sectors (e.g., agriculture, health, environment, infrastructure and urban planning, insurance and finance, tourism, etc). Users of meteorological and climate services range from various ministries and agencies in the government, and sectors to local government, communities and private sector. Furthermore, the UN Development Assistance Framework (UNDAF), World Bank Country Strategy for Development and NAPAs provide clear processes for inclusion of information development needs as part of the development agenda of the developing and least developed countries.

2. The implementation of the HFA at the regional and international levels is supported by the International Strategy for Disaster Reduction (ISDR) System, which is serviced by the ISDR Secretariat, and involves coordination across a large group of international and regional agencies from development, humanitarian, scientific and technical communities and bi-lateral donors, and inter-governmental economic grouping. For example,

    a. At the regional level, many countries are engaging in regional cooperation to better address their national DRM through data and information sharing and establishment of regional approaches and standards and priorities. Examples of regional cooperation and coordination include: (i) Regional intergovernmental economic groupings (African Union, SADC, ASEAN, SOPAC, APEC, etc) are developing regional disaster risk management strategies, areas of regional cooperation (e.g., regional risk assessment, information sharing to support cross-boundary early warnings, etc), (ii) Regional intergovernmental organization dedicated to disaster risk management (e.g., CEPREDENAC, CEDERA, ECLAC, ADPC, ACRD, DPPI, etc) are expanding their scope to address prevention and preparedness issues, serving as an effective platform for interacting with disaster risk management user community at the national levels, (iii) Regionally coordinated Disaster Risk Management and Adaptation Projects supported by multi-lateral partnerships involving World Bank/ISDR/UNDP/WMO are underway in a number of regions such as South East Europe, Central Asia and Caucasus, South East Asia (with other regions being considered), providing a coordinated forum for linking NMHS to DRM processes at the national and regional levels.
    b. At the international level, many users such as international humanitarian agencies are seeking climate information to support their contingency planning, development agencies and bi-lateral donors use information to direct funding to support disaster high risk countries, multi-nationals private sector companies (e.g., energy, agricultural, and reinsurance companies) use global information in strategic planning and managing risk portfolios across different regions. International coordination mechanism such as Interagency Standing Committee (consortium of 40 international humanitarian agencies), UN ISDR Global Platform for Disaster Reduction (which brings together all countries technical and disaster risk management experts together bi-annually),

network of UN development agencies (UNDG) with World Bank provide mechanisms to target these user groups to identify and understand their needs and requirements for global scale information. Furthermore, climate information could be used in the development of major global reports such as such as the bi-annual UN ISDR Global Assessment Report on Disaster Risk Reduction, Annual World Bank Global Development Report, Annual UNDP Human Development Report, IASC quarterly early warning/early action report.

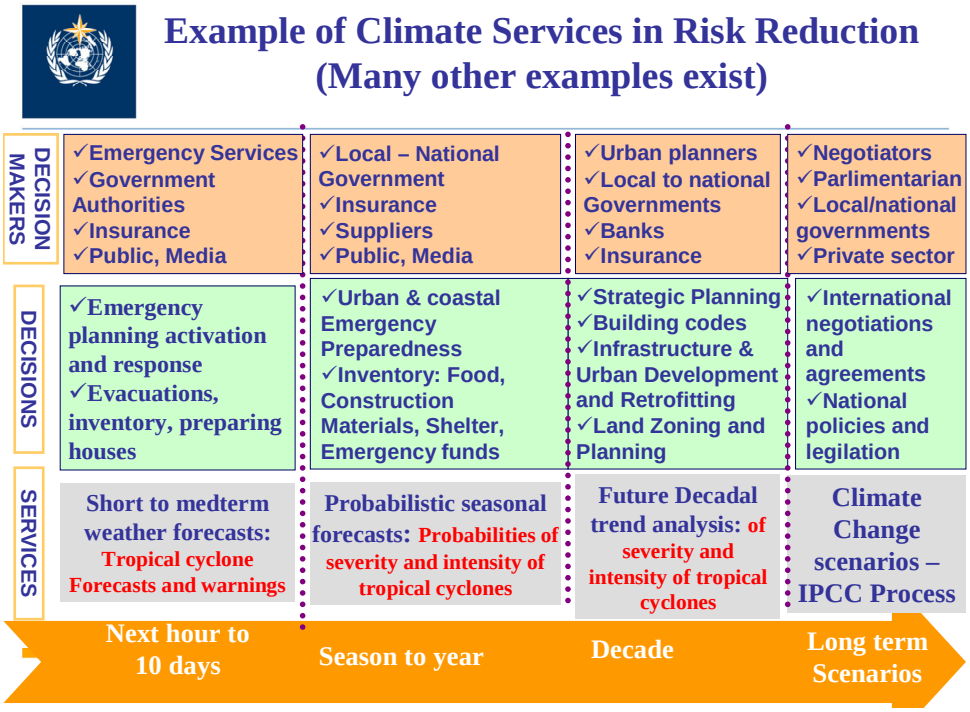


Figure 3: Examples of seamless Meteorological, Hydrological and climate services in disaster risk management

3.1. Example: Task Team on Meteorological Services for Improved Humanitarian Planning and Response

The Task Team on "Meteorological Services for Improved Humanitarian Planning and Response" (hereafter referred to as Humanitarian Task Team) was established by the Commission of Basic Systems (CBS) of WMO at its 14th Session (Croatia, April 2009). The objective of the Humanitarian Task Team is to work towards the development of operational capacities to provide meteorological, hydrological and climate information products and services to humanitarian agencies at international, regional and national levels to support their emergency contingency planning, preparedness and response.

Following the establishment of the Task Team, a brainstorming session on "Meteorological Services for Improved Humanitarian Emergency Contingency Planning and Response" was held at the WMO headquarters, in Geneva, on the 17 April 2009. The meeting was attended by experts from international and UN humanitarian agencies involved in humanitarian contingency planning, including IFRC, OCHA, UNICEF, UNITAR, UNHCR, WFP, WHO and staff from the WMO Secretariat. The session initiated the process of assessment of the needs of the humanitarian agencies for meteorological, hydrological and climate information products and services and recommended the inclusion of hydrological and climate aspects in the work of the Humanitarian Task Team. Pursuant to this request, the chair of the OPAG on PWS in coordination with the President of CBS liaised with the Presidents of the Commissions of Climatology (CCl) and Hydrology (CHy), who designated experts from these Commissions to the Humanitarian Task Team. The president of CBS in consultation with the presidents of CCl and CHy approved revised

Terms of Reference for the humanitarian Task Team.

The Task Team on "Meteorological Services for Improved Humanitarian Planning and Response" held its first meeting at the WMO Headquarters, in Geneva, Switzerland from 31 August to 2 September 2010. The meeting was attended by 29 experts from international and UN agencies involved in the coordination of humanitarian contingency planning and response, experts in operational meteorology, hydrology and climate forecasting and WMO Secretariat staff. The meeting:

(i) Reviewed the structure and decision making processes of the humanitarian agencies at global, regional and national levels;

(ii) Reviewed the meteorological hydrological and climate information products and services currently used by humanitarian agencies, including their sources and dissemination mechanisms;

(iii) Reviewed needs and requirements of humanitarian agencies for meteorological, hydrological and climate information products and services;

(iv) Reviewed the capacities available through the WMO operational network for provision of meteorological, hydrological and climate information products and services;

(v) Identified major gaps with respect to the utilization of meteorological, hydrological and climate information products and services at national, regional and international levels; and

(vi) Recommended concrete actions leading to the initiation of pilot projects for the development of prototype products and services targeted at the needs and requirements of the humanitarian agencies.

The meeting concluded that:

1. Currently there are already many meteorological, hydrological and climate information products and services available from different sources. This results in lack of systematic use of meteorological, hydrological and climate information products as different sources provide different products. Humanitarian agencies require systematic and consistent sources of information from the global to the national level.

2. There is a strong need of partnerships between the producers of meteorological, hydrological and climate information products and services and the users. Partnerships enable better understanding of user needs, building of trust and the provision of feed for the continuous improvement of service delivery.

3. As a first step to ensure that the requirements of humanitarian agencies for meteorological, hydrological and climate information products and services are met through the WMO operational network of NMHSs, Regional Specialized Meteorological Centres (RSMCs), Regional Climate Centres (RCCs), Drought Monitoring Centres etc., there is a need to take stock of the products that are currently available and being used within the structures of the humanitarian agencies for their emergency contingency planning, preparedness and response.

4. The work of the Humanitarian Task Team will focus on meteorological, hydrological and climate information products at global and regional levels. Aspects related to provision of this information at national level are being addressed through DRR Programme cooperation projects currently underway in South East Europe, Central Asia and Caucuses, Southeast Asia and Central America and the Caribbean.

5. To implement the first pilot, Central America and Southern Africa were considered as potential regions. Consideration was based on (i) need and impact such projects can have in the region;

(ii) good governance including political will, existence of coordination structures for DRM, availability of institutional and technical capabilities, allocation of resources for DRM; (iii) demonstrated efforts and progress in; (iv) capacity development activities being carried out by WMO and partners; and (v) on-site presence of humanitarian agencies.

The final report of the first meeting will be available on the following webpage by end of October 2010: http://www.wmo.int/pages/prog/drr/events/HumanitarianTT/index_en.html.

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